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99AN122-E

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**REMARKS**

Claims 1-21 are currently pending in the subject application and are presently under consideration. Claims 1, 11, 12, 16, and 17 have been amended herein. A clean version of all pending claims is found at pages 2-7 of this Reply. A marked-up version of claim amendments made herein is found on pages 14-16 of this Reply.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

**I. Rejection of Claims 1-2, 4, 7-10, and 17-21 Under 35 U.S.C. §103(a)**

Claims 1-2, 4, 7-10, and 17-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kemmer (U.S. Patent No. 4,234,831) in view of Spinner, *et al.* (U.S. Patent No. 5,771,174). It is submitted that this rejection should be withdrawn for at least the following reasons. The combination of Kemmer and Spinner, *et al.* does not make obvious all the limitations of the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) *must teach or suggest all the claim limitations*. See MPEP §706.02(j). The *teaching or suggestion to make the claimed combination* and the reasonable expectation of success *must both be found in the prior art and not based on applicant's disclosure*. See *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

In particular, neither Kemmer nor Spinner, *et al.* teach or suggest a control system having a network interface ... , wherein the control system and an associated rotary-linear motor are integrated into one module as recited in amended claims 1 and 17. The Examiner conceded that Kemmer does not teach a network interface operative to receive control information. Accordingly, the Examiner relied on Spinner, *et al.* to make up for the deficiencies of Kemmer. In particular, the Examiner relied on the gateway 22 of Spinner, *et*

09/817,622

99AN122-E

*al.* as being equivalent to the network interface recited in claim 1. However, Spinner, *et al.* discloses that the gateway 22 acts as a protocol converter to interpret messages from a host control system 20 and convert and distribute the information to actuator controllers 30. Moreover, Figure 1 of Spinner, *et al.* illustrates that the gateway 22 is located between the host control system 20 and the actuator controllers 30. Accordingly, the gateway 22 is not integrated with an associated actuator controller 30 into one module. Moreover, there is nothing in Spinner, *et al.* to teach or suggest integrating a gateway 22 or network interface and an associated actuator controller into one module.

Further, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Teachings of references can be combined *only* if there is some suggestion or incentive to do so. Here, neither the nature of the problem to be solved, the teachings in the cited art, nor the knowledge of persons of ordinary skill provides sufficient suggestion or motivation to combine the references. Instead, the Examiner relies on improper hindsight in reaching his obviousness determination. The Federal Court has held that to imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d (BNA) 1596 (Fed. Cir. 1988) (citations omitted). Kemmer and Spinner, *et al.* cannot be combined to make the present invention obvious because there is not proper suggestion or motivation to combine the references teachings to create the subject matter of claims 1 and 17. Kemmer is directed to providing a simplified arrangement for a compound rotary and/or linear motor; while Spinner, *et al.* is directed to allowing peer-to-peer communication take place between slice lip profile actuators such that an algorithm resident in each actuator can make target value decisions based on information received from its peers. Accordingly, it appears that the purported combination of references is based on improper hindsight, in which the present application provides the teaching and motivation to do so.

09/817,622

99AN122-E

In view of at least the aforementioned reasons, the subject invention as recited in claims 1 and 17 is not obvious over Kemmer and Spinner, *et al.*, taken individually or in combination. Claims 2-10 depend from claim 1 and claims 18-21 depend from claim 17. Accordingly, withdrawal of this rejection and allowance of claims 1-10 and 17-21 are respectfully requested.

**II. Rejection of Claims 11-15 Under 35 U.S.C. §103(a)**

Claims 11-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sudo, *et al.* (U.S. Patent No. 4,644,205) in view of Spinner, *et al.* (U.S. Patent No. 5,771,174). It is submitted that this rejection should be withdrawn for at least the following reasons. The combination of Sudo, *et al.* and Spinner, *et al.* does not teach or suggest every limitation set forth in claims 11-15.

In particular, neither Sudo, *et al.* nor Spinner, *et al.* teach or suggest an integrated control system having a network interface and an associated rotary-linear motor integrated into a single module, as recited in amended claims 11 and 15. In the Office Action dated October 15, 2002, the Examiner conceded that Sudo, *et al.* does not have a network interface operative to receive control information via an associated network. Accordingly, the Examiner relied on Spinner, *et al.* to make up for the deficiencies of Sudo, *et al.* However, as discussed herein, Spinner, *et al.* does not disclose, teach, or suggest integrating a control system having a network interface and an associated rotary-linear motor into one module. Rather, Spinner *et al.* illustrates a host control system, a gateway, and a plurality of actuator controllers as separate modules.

Thus, in view of at least the aforementioned reasons, the subject invention as recited in claims 11 and 15 is not obvious over Sudo, *et al.* and Spinner, *et al.*, taken individually or in combination. Claims 12-14 depend from claim 11. Accordingly, withdrawal of this rejection and allowance of claims 11-15 are respectfully requested.

**III. Rejection of Claims 1-10 and 16-21 Under 35 U.S.C. §103(a)**

Claims 1-10 and 16-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sudo, *et al.* (U.S. Patent No. 4,644,205) in view of Spinner, *et al.* (U.S. Patent No.

09/817,622

99AN122-E

5,771,174) and Gerard (U.S. Patent No. 4,751,437). It is submitted that this rejection should be withdrawn for at least the following reasons. The combination of Sudo, *et al.*, Spinner, *et al.*, and Gerard does not teach or suggest every limitation set forth in the subject claims.

In particular, neither Sudo, *et al.*, Spinner, *et al.*, nor Gerard teach or suggest an integrated control system having a network interface and an associated rotary-linear motor integrated into a single module, as recited in amended claims 1, 16, and 17. In the Office Action dated October 15, 2002, the Examiner conceded that Sudo, *et al.* does not have a network interface operative to receive control information via an associated network or an amplifier. Accordingly, the Examiner relied on Spinner, *et al.* to make up for the deficiencies of Sudo, *et al.* with respect to the network interface; and Gerard to make up for the deficiencies of Sudo, *et al.* with respect to the amplifier. However, as discussed herein, Spinner, *et al.* does not disclose, teach, or suggest integrating a control system having a network interface and an associated rotary-linear motor into one module. Rather, Spinner *et al.* illustrates a host control system, a gateway, and a plurality of actuator controllers as separate modules.

Thus, in view of at least the aforementioned reasons, the subject invention as recited in claims 1, 16, and 17 is not obvious over Sudo, *et al.*, Spinner, *et al.*, and Gerard, taken individually or in combination. Claims 2-10 depend from claim 1 and claims 18-21 depend from claim 17. Accordingly, withdrawal of this rejection and allowance of claims 1-10 and 16-21 are respectfully requested.

#### **IV. Rejection of Claims 1-4, 7-10 and 16-21 Under 35 U.S.C. §103(a)**

Claims 1-4, 7-10 and 16-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kemmer (U.S. Patent 4,234,831) in view of Lee (U.S. Patent No. 4,692,678). It is submitted that this rejection should be withdrawn for at least the following reasons. The combination of Kemmer and Lee does not teach or suggest every limitation set forth in the subject claims.

In particular, neither Kemmer nor Lee teach or suggest a control system having a network interface operative to receive control information, the control system being operative to control an amplifier to selectively energize coils to effect desired movement of a plunger

09/817,622

99AN122-E

based on the control information received via the network interface as required by amended claims 1, 16, and 17. In the Office Action dated October 15, 2002, the Examiner conceded that Kemmer does not teach a network interface operative to receive control information from an actuator. Accordingly, the Examiner relied on Lee to make up for the deficiencies of Kemmer. In particular, the Examiner relied on reference letter X of Lee as being equivalent to the control system having a network interface as recited in the subject claims. However, reference letter X of Lee is an analog-to-digital computer interface. Sensing means 2 merely converts positional data into an electronic signal that can be fed to feedback means X. There is nothing in Lee which discloses, teaches, or suggests a control system having a network interface for receiving information over a network.

Thus, in view of at least the aforementioned reasons, the subject invention as recited in claims 1, 16, and 17 is not obvious over Kemmer and Lee, taken individually or in combination. Claims 2-10 depend from claim 1 and claims 18-21 depend from claim 17. Accordingly, withdrawal of this rejection and allowance of claims 1-10 and 16-21 are respectfully requested.

**V. Rejection of Claims 11-15 Under 35 U.S.C. §103(a)**

Claims 11-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Sudo *et al.* (U.S. Patent No. 4,644,205) in view of Lee (U.S. Patent No. 4,692,678). It is submitted that this rejection should be withdrawn for at least the following reasons. The combination of Sudo, *et al.* and Lee does not teach or suggest every limitation set forth in claims 11-15.

In particular, neither Sudo, *et al.* nor Lee teach or suggest an integrated control system having a network interface operative to receive control information via an associated network as required by amended claim 11. In the Office Action dated October 15, 2002, the Examiner conceded that Sudo, *et al.* does not teach a network interface operative to receive control information from via an associated network. Accordingly, the Examiner relied on Lee to make up for the deficiencies of Sudo, *et al.* However, as discussed herein, Lee does not disclose, teach, or suggest a control system having a network interface. Rather, Lee merely illustrates an analog-to-digital interface X which can be used in conjunction with sensing means 2 to provide an output to processing means W.

09/817,622

99AN122-E

Thus, in view of at least the aforementioned reasons, the subject invention as recited in claim 11 is not obvious over Sudo, et al. and Lee, taken individually or in combination. Claims 12-15 depend from claim 11. Accordingly, withdrawal of this rejection and allowance of claims 11-15 are respectfully requested.

#### VI. Conclusion

The present application is believed to be condition for allowance in view of the above amendments and comments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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09/817,622

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**MARKED UP VERSION OF AMENDED CLAIMS**

**In the Claims:**

Please amend the claims as indicated below:

1. (Amended) An integrated rotary-linear actuator system, comprising:  
a plunger movable along and rotatable about a longitudinal axis extending through the plunger;  
a coil system having coils arranged to, when energized, interact with the plunger to move the plunger in at least one of a rotational mode and in a linear mode;  
an amplifier coupled to the coils and operative to provide electrical energy to energize the coils; and  
a control system coupled with the amplifier, the control system having a network interface operative to receive control information, the control system being operative to control the amplifier to selectively energize the coils to effect desired movement of the plunger based on the control information received via the network interface,  
wherein the control system and an associated rotary-linear motor are integrated into a single module.

11. (Amended) A rotary-linear actuator system, comprising:  
a motor support having a well;  
a plunger supported for movement in at least part of the well so as to enable axial movement of the plunger relative to the well along a longitudinal axis of the plunger and rotational movement of the plunger about the longitudinal axis;  
an array of magnets associated with the plunger;  
a first set of coils arranged to, when energized, apply an electric field that interacts with the array of magnets and provides an axial force to drive the plunger element in a linear mode;  
a second set of coils arranged to, when energized, apply an electric field that interacts with the array of magnets and provides a tangential force to drive the plunger element in a rotational mode; and

09/817,622

99AN122-E

an integrated control system having a network interface operative to receive control information via an associated network, the control system being operative to selectively energize the first and second sets of coils to effect movement of the plunger in at least one of the linear and rotational modes,

wherein the integrated control system and an associated rotary-linear motor are integrated into a single module.

12. (Amended) The system of claim [1] 11, further comprising a computer operative to communicate the control information to the control system via the associated network using a network protocol.

16. (Amended) An integrated rotary-linear actuator system, comprising:

- means for supporting a plurality of motors including means for supporting a bearing, the means for supporting the plurality of motors and the means for supporting the bearing defining a well;
- means for moving a stage and adapted to be received by the well, the means for moving the stage being axially movable along its longitudinal axis between retracted and extended conditions and rotatable about its longitudinal axis, the means for moving the stage being supported by a bearing located between the means for moving the stage and the means for supporting the bearing;
- means for providing a magnetic field arranged on the means for moving the stage;
- means for applying a substantially axial force on the means for providing the magnetic field and driving the means for moving the stage linearly;
- means for applying a substantially tangential force on the means for providing the magnetic field for the means for moving the stage rotationally;
- means for amplifying an electrical signal and providing the amplified signal to at least one of the means for applying; and
- control means for controlling the means for amplifying, the control means including means for interfacing with an associated network and receiving control information



09/817,622

99AN122-E

to program the control means to control the means for amplifying to selectively activate the means for applying.

wherein the control means and an associated motor are integrated into a single module.

17. (Amended) A method for controlling an integrated rotary-linear actuator system, the rotary-linear actuator system including a control system and an associated rotary-linear motor integrated into one module, the control system including a network interface to enable communication over an associated network, the method comprising:

receiving control information at the network interface of the integrated rotary-linear actuator system via the associated network;

programming operating parameters of the rotary-linear actuator system based on the received control information; and

controlling an amplifier to selectively energize coils of the rotary-linear actuator system according to the programmed operating parameters, such that a plunger, which is moveable linearly and rotationally about a longitudinal axis thereof, moves in at least one of a linear and rotational direction in response to the selective energization of the coils.

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